

# SPREAD POLARIZATION TRANSMITTER AND ASSOCIATED SYSTEM AND METHOD OF OPERATION

## ABSTRACT OF THE DISCLOSURE

5           A spread polarization transmitter for transmitting at least one light signal  
comprises a spread-spectrum communication apparatus and a polarization modulator.  
The spread-spectrum communication apparatus modulates the at least one light signal  
according to a spread-spectrum modulation technique. The polarization modulator  
comprises a polarizer and a magnetic bubble waveguide. The polarizer is capable of  
10 polarizing the at least one spread-spectrum modulated light signal in a polarized  
direction. And the magnetic bubble waveguide, which is configured in accordance  
with a pseudo-random polarization code sequence such that the plurality of magnetic  
bubble domains assume a time varying position representative of the pseudo-random  
polarization code sequence, is capable of receiving at least one polarized, spread-  
15 spectrum modulated light signal. Thereafter, the magnetic bubble waveguide is  
capable of at least partially rotating the polarized, spread-spectrum modulated light  
signals by a predetermined angle from the polarized direction during transmission  
therethrough to create spread polarization modulated light signals.